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Term:

L5 same bacteri\$

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50

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1

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### Search History

DATE: Tuesday, October 12, 2004 [Printable Copy](#) [Create Case](#)

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 result set

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<u>L6</u>	L5 same bacteri\$	81	<u>L6</u>
<u>L5</u>	sialyltransferase	827	<u>L5</u>
<u>L4</u>	L2 and bacter\$	8	<u>L4</u>
<u>L3</u>	L2 same jejuni	1	<u>L3</u>
<u>L2</u>	alpha 2,3-sialyltransferase	25	<u>L2</u>
<u>L1</u>	alpha 2,3-sialyltransferase	0	<u>L1</u>

END OF SEARCH HISTORY

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L6: Entry 48 of 81

File: PGPB

Mar 21, 2002

DOCUMENT-IDENTIFIER: US 20020034805 A1

TITLE: FUSION PROTEINS FOR USE IN ENZYMATIC SYNTHESIS OF OLIGOSACCHARIDES

Detail Description Paragraph:

0071] Sialyltransferases from prokaryotes have been described by, for example, Weisgerber et al. (1991) Glycobiol. 1:357-365; Frosch, M. et al. (1991) Mol. Microbiol. 5:1251-1263; and Albert, M. et al. (1996) J. Biol. Chem. 271:28271-28276. It has been suggested that the bacterial sialyltransferases might have a wider spectrum of acceptors than their mammalian counterparts (Kajihara, Y. et al. (1996) J. Org. Chem. 61:8632-8635 and Gilbert et al., Eur. Biochem. 249: 187-194-(1997)).

Detail Description Paragraph:

0088] The invention also provides fusion polypeptides that are useful for sialylation reactions. These fusion polypeptides include a catalytic domain from a sialyltransferase and a catalytic domain from a CMP-sialic acid synthetase (EC 2.7.7.43, CMP-N-acetylneuraminic acid synthetase). Such genes are available from, for example, Mus musculus (GenBank AJ006215, Munster et al., Proc. Natl. Acad. Sci. U.S.A. 95: 9140-9145 (1998)), rat (Rodriguez-Aparicio et al. (1992) J Biol. Chem. 267: 9257-63), Haemophilus ducreyi (Tullius et al. (1996) J. Biol. Chem. 271: 15373-80), Neisseria meningitidis (Ganguli et al. (1994) J. Bacteriol. 176: 4583-9), group B streptococci (Haft et al. (1994) J. Bacteriol. 176: 7372-4), and E. coli (GenBank 05023, Zapata et al. (1989) J. Biol. Chem. 264: 14769-14774). Alternatively, fusion proteins for sialylation reactions can have a catalytic domain from either or both of GlcNAc 2' epimerase (EC 5.1.3.8), which converts GlcNAc to ManNAc, and neuraminic acid aldolase (EC 3.1.3.3; SwissProt Accession No. P06995), which in turn converts the ManNAc to sialic acid.

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Section:



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<input checked="" type="checkbox"/>	6709834	all	all	N/A	PGPB,USPT,USOC,EPAB,JPAB,DWPI
<input checked="" type="checkbox"/>	6689604	all	all	N/A	PGPB,USPT,USOC,EPAB,JPAB,DWPI
<input checked="" type="checkbox"/>	6503744	all	all	N/A	PGPB,USPT,USOC,EPAB,JPAB,DWPI
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<input checked="" type="checkbox"/>	5962294	all	all	N/A	PGPB,USPT,USOC,EPAB,JPAB,DWPI
<input checked="" type="checkbox"/>	5908766	all	all	N/A	PGPB,USPT,USOC,EPAB,JPAB,DWPI
<input checked="" type="checkbox"/>	6255094	all	all	N/A	PGPB,USPT,USOC,EPAB,JPAB,DWPI
<input checked="" type="checkbox"/>	5827714	all	all	N/A	PGPB,USPT,USOC,EPAB,JPAB,DWPI
<input checked="" type="checkbox"/>	US6255094B	all	all	N/A	PGPB,USPT,USOC,EPAB,JPAB,DWPI

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(FILE 'HOME' ENTERED AT 13:51:26 ON 12 OCT 2004)

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, AQUALINE, ANABSTR, ANTE, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DISSABS, DDFB, DDFU, DGENE, ...' ENTERED AT 14:00:32 ON 12 OCT 2004  
SEA ALPHA 2,3-SIALYLTRANSFERASE

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1 FILE ADISCTI  
1 FILE AGRICOLA  
3 FILE ANABSTR  
1 FILE BIOBUSINESS  
1 FILE BIOCOMMERCE  
15 FILE BIOENG  
223 FILE BIOSIS  
160 FILE BIOTECHNO  
15 FILE CABA  
98 FILE CANCERLIT  
327 FILE CAPLUS  
8 FILE CEABA-VTB  
1 FILE CIN  
19 FILE DISSABS  
1 FILE EMBAL  
209 FILE EMBASE  
142 FILE ESBIOBASE  
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2 FILE FROSTI  
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383 FILE GENBANK  
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102 FILE LIFESCI  
266 FILE MEDLINE  
110 FILE PASCAL  
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320 FILE SCISEARCH  
75 FILE TOXCENTER  
262 FILE USPATFULL  
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27 FILE WPIDS  
27 FILE WPINDEX

L1 QUE ALPHA 2,3-SIALYLTRANSFERASE

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FILE 'CAPLUS, SCISEARCH, MEDLINE, USPATFULL, BIOSIS, EMBASE, BIOTECHNO, ESBIOBASE, PASCAL, LIFESCI, CANCERLIT' ENTERED AT 14:04:01 ON 12 OCT 2004

L2 47 S L1 AND JEJUNI

L3 37 DUP REM L2 (10 DUPLICATES REMOVED)

=>

L3 ANSWER 1 OF 37 USPATFULL on STN DUPLICATE 1  
 ACCESSION NUMBER: 2004:33951 USPATFULL  
 TITLE: Lipopolysaccharide .alpha.-2,  
 3 sialyltransferase of Campylobacter  
 jejuni and its uses  
 INVENTOR(S): Gilbert, Michel, Hull, CANADA  
 Wakarchuk, Warren W., Gloucester, CANADA  
 PATENT ASSIGNEE(S): National Research Council of Canada, Ottawa, CANADA  
 (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6689604	B1	20040210
APPLICATION INFO.:	US 1999-272960		19990318 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 1998-78891P	19980320 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	GRANTED	
PRIMARY EXAMINER:	Smith, Lynette R. F.	
ASSISTANT EXAMINER:	Portner, Ginny Allen	
LEGAL REPRESENTATIVE:	Townsend and Townsend and Crew LLP	
NUMBER OF CLAIMS:	30	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	3 Drawing Figure(s); 4 Drawing Page(s)	
LINE COUNT:	1583	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The structure and specificity of a recombinant .alpha.  
 2,3-sialyltransferase from Campylobacter  
 spp., is disclosed. Also provided are methods for using the  
 .alpha.2,3-sialyltransferase in the  
 production of desired carbohydrate structures and nucleic acids that  
 encode the sialyltransferase.

L3 ANSWER 2 OF 37 USPATFULL on STN  
 ACCESSION NUMBER: 2004:233335 USPATFULL  
 TITLE: Nucleic acids encoding sialytransferases from C.  
 jejuni  
 INVENTOR(S): Gilbert, Michel, Hull, CANADA  
 Wakarchuk, Warren W., Gloucester, CANADA  
 PATENT ASSIGNEE(S): National Research Council of Canada, Ottawa, CANADA  
 (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004180406	A1	20040916
APPLICATION INFO.:	US 2003-735419	A1	20031211 (10)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 2001-816028, filed on 21 Mar 2001, GRANTED, Pat. No. US 6699705 Continuation-in-part of Ser. No. US 2000-495406, filed on 31 Jan 2000, GRANTED, Pat. No. US 6503744		

	NUMBER	DATE
PRIORITY INFORMATION:	US 1999-118213P	19990201 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834	
NUMBER OF CLAIMS:	42	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	4 Drawing Page(s)	

LINE COUNT: 5466

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides prokaryotic glycosyltransferases, including a bifunctional sialyltransferase that has both an  $\alpha$ 2,3- and an  $\alpha$ 2,8-activity. A  $\beta$ 1,4-GalNAc transferase and a  $\beta$ 1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). The glycosyltransferases can be obtained from, for example, Campylobacter species, including *C. jejuni*. In additional embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases.

L3 ANSWER 3 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2004:202948 USPATFULL

TITLE: Haemophilus influenzae sialyltransferase and methods of use thereof

INVENTOR(S): Apicella, Michael A., Solon, IA, UNITED STATES  
Gibson, Bradford W., Berkeley, CA, UNITED STATES  
Phillips, Nancy J., Berkeley, CA, UNITED STATES  
Jones, Paul A., Coralville, IA, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004156837	A1	20040812
APPLICATION INFO.:	US 2003-366548	A1	20030212 (10)
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	APPLICATION		
LEGAL REPRESENTATIVE:	Schwegman, Lundberg, Woessner & Kluth, P.A., P.O. Box 2938, Minneapolis, MN, 55402		
NUMBER OF CLAIMS:	29		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	4 Drawing Page(s)		
LINE COUNT:	2265		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention is directed to sialytransferases, such as SiaA sialytransferases isolated from Haemophilus influenzae. Further provided herein are methods for producing sialylated lipooligosaccharides, vaccines, and host cells and systems for the production of sialylated lipooligosaccharides.

L3 ANSWER 4 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2004:196860 USPATFULL

TITLE: Lipopolysaccharide  $\alpha$ -2,  
3 sialyltransferase of campylobacter  
jejuni and its uses

INVENTOR(S): Gilbert, Michel, Hull, CANADA  
Wakarchuk, Warren W., Gloucester, CANADA

PATENT ASSIGNEE(S): National Research Council of Canada, Ottawa, CANADA  
(non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004152165	A1	20040805
APPLICATION INFO.:	US 2004-799016	A1	20040311 (10)
RELATED APPLN. INFO.:	Division of Ser. No. US 2002-58636, filed on 29 Jan 2002, GRANTED, Pat. No. US 6709834 Division of Ser. No. US 1999-272960, filed on 18 Mar 1999, GRANTED, Pat. No. US 6689604		

	NUMBER	DATE
PRIORITY INFORMATION:	US 1998-78891P	19980320 (60)
DOCUMENT TYPE:	Utility	

FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO  
CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834  
NUMBER OF CLAIMS: 34  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 4 Drawing Page(s)  
LINE COUNT: 1545  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The structure and specificity of a recombinant **.alpha.**  
**2,3-sialyltransferase** from *Campylobacter*  
spp., is disclosed. Also provided are methods for using the .  
**alpha.2,3-sialyltransferase** in the  
production of desired carbohydrate structures and nucleic acids that  
encode the sialyltransferase.

L3 ANSWER 5 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2004:184970 USPATFULL  
TITLE: Glycoconjugation methods and proteins/peptides produced  
by the methods  
INVENTOR(S): DeFrees, Shawn, North Wales, PA, UNITED STATES  
Zopf, David, Wayne, PA, UNITED STATES  
Bayer, Robert, San Diego, CA, UNITED STATES  
Bowe, Caryn, Doylestown, PA, UNITED STATES  
Hakes, David, Willow Grove, PA, UNITED STATES  
Chen, Xi, Lansdale, PA, UNITED STATES  
PATENT ASSIGNEE(S): Neose Technologies, Inc. (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004142856	A1	20040722
APPLICATION INFO.:	US 2003-410913	A1	20030409 (10)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 2003-360779, filed on 19 Feb 2003, PENDING Continuation-in-part of Ser. No. US 2003-360770, filed on 6 Jan 2003, PENDING Continuation-in-part of Ser. No. US 2002-287994, filed on 5 Nov 2002, PENDING Continuation of Ser. No. WO 2002-US32263, filed on 9 Oct 2002, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	US 2002-407527P	20020828 (60)
	US 2002-407527P	20020828 (60)
	US 2002-404249P	20020816 (60)
	US 2002-396594P	20020717 (60)
	US 2002-391777P	20020625 (60)
	US 2002-387292P	20020607 (60)
	US 2001-334301P	20011128 (60)
	US 2001-334233P	20011128 (60)
	US 2001-334692P	20011121 (60)
	US 2001-328523P	20011010 (60)

DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: MORGAN, LEWIS & BOCKIUS LLP, 1701 MARKET STREET,  
PHILADELPHIA, PA, 19103-2921  
NUMBER OF CLAIMS: 88  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 497 Drawing Page(s)  
LINE COUNT: 16544  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention includes methods and compositions for remodeling a peptide  
molecule, including the addition or deletion of one or more glycosyl  
groups to a peptide, and/or the addition of a modifying group to a  
peptide.

L3 ANSWER 6 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2004:178391 USPATFULL  
TITLE: Remodeling and glycoconjugation of peptides  
INVENTOR(S): DeFrees, Shawn, North Wales, PA, UNITED STATES  
Zopf, David, Wayne, PA, UNITED STATES  
Bayer, Robert, San Diego, CA, UNITED STATES  
Bowe, Caryn, Doylestown, PA, UNITED STATES  
Hakes, David, Willow Grove, PA, UNITED STATES  
Chen, Xi, Lansdale, PA, UNITED STATES  
PATENT ASSIGNEE(S): Neose Technologies, Inc. (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004137557	A1	20040715
APPLICATION INFO.:	US 2002-287994	A1	20021105 (10)
RELATED APPLN. INFO.:	Continuation of Ser. No. WO 2002-US32263, filed on 9 Oct 2002, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	US 2002-407527P	20020828 (60)
	US 2002-404249P	20020816 (60)
	US 2002-396594P	20020717 (60)
	US 2002-391777P	20020625 (60)
	US 2002-387292P	20020607 (60)
	US 2001-334301P	20011128 (60)
	US 2001-334233P	20011128 (60)

DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: MORGAN, LEWIS & BOCKIUS LLP, 1701 MARKET STREET,  
PHILADELPHIA, PA, 19103-2921

NUMBER OF CLAIMS: 447  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 345 Drawing Page(s)  
LINE COUNT: 16205

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention includes methods and compositions for remodeling a peptide molecule, including the addition or deletion of one or more glycosyl groups to a peptide, and/or the addition of a modifying group a peptide.

L3 ANSWER 7 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2004:172476 USPATFULL  
TITLE: Glycopegylation methods and proteins/peptides produced by the methods  
INVENTOR(S): DeFrees, Shawn, North Wales, PA, UNITED STATES  
Zopf, David, Wayne, PA, UNITED STATES  
Bayer, Robert, San Diego, CA, UNITED STATES  
Bowe, Caryn, Doylestown, PA, UNITED STATES  
Hakes, David, Willow Grove, PA, UNITED STATES  
Chen, Xi, Lansdale, PA, UNITED STATES  
PATENT ASSIGNEE(S): Neose Technologies, Inc. (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004132640	A1	20040708
APPLICATION INFO.:	US 2003-411012	A1	20030409 (10)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. WO 2002-US32263, filed on 9 Oct 2002, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	US 2002-407527P	20020828 (60)
	US 2002-404249P	20020816 (60)
	US 2002-396594P	20020717 (60)



US 2002-391777P 20020625 (60)  
US 2002-387292P 20020607 (60)  
DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: MORGAN, LEWIS & BOCKIUS LLP, 1701 MARKET STREET,  
PHILADELPHIA, PA, 19103-2921  
NUMBER OF CLAIMS: 77  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 497 Drawing Page(s)  
LINE COUNT: 19255

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention includes methods and compositions for remodeling a peptide molecule, including the addition or deletion of one or more glycosyl groups to a peptide, and/or the addition of a modifying group to a peptide.

L3 ANSWER 8 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2004:165351 USPATFULL

TITLE: Follicle stimulating hormone: remodeling and glycoconjugation of FSH

INVENTOR(S): DeFrees, Shawn, North Wales, PA, UNITED STATES

Zopf, David, Wayne, PA, UNITED STATES

Bayer, Robert, San Diego, CA, UNITED STATES

Bowe, Caryn, Doylestown, PA, UNITED STATES

Hakes, David, Willow Grove, PA, UNITED STATES

Chen, Xi, Lansdale, PA, UNITED STATES

PATENT ASSIGNEE(S): Neose Technologies, Inc. (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004126838	A1	20040701
APPLICATION INFO.:	US 2003-410997	A1	20030409 (10)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 2003-360779, filed on 19 Feb 2003, PENDING Continuation-in-part of Ser. No. US 2003-360770, filed on 6 Jan 2003, PENDING Continuation-in-part of Ser. No. US 2002-287994, filed on 5 Nov 2002, PENDING Continuation of Ser. No. WO 2002-US32263, filed on 9 Oct 2002, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	US 2002-407527P	20020828 (60)
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	US 2002-396594P	20020717 (60)
	US 2002-391777P	20020625 (60)
	US 2002-387292P	20020607 (60)
	US 2001-334301P	20011128 (60)
	US 2001-334233P	20011128 (60)

DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: MORGAN, LEWIS & BOCKIUS LLP, 1701 MARKET STREET,  
PHILADELPHIA, PA, 19103-2921

NUMBER OF CLAIMS: 115  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 497 Drawing Page(s)  
LINE COUNT: 19355

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention includes methods and compositions for remodeling a peptide molecule, including the addition or deletion of one or more glycosyl groups to a peptide, and/or the addition of a modifying group to a peptide.

L3 ANSWER 9 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2004:150947 USPATFULL

TITLE: Interferon beta: remodeling and glycoconjugation of interferon beta

INVENTOR(S): DeFrees, Shawn, North Wales, PA, UNITED STATES  
 Zopf, David, Wayne, PA, UNITED STATES  
 Bayer, Robert, San Diego, CA, UNITED STATES  
 Bowe, Caryn, Doylestown, PA, UNITED STATES  
 Hakes, David, Willow Grove, PA, UNITED STATES  
 Chen, Xi, Lansdale, PA, UNITED STATES

PATENT ASSIGNEE(S): Neose Technologies, Inc. (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004115168	A1	20040617
APPLICATION INFO.:	US 2003-410930	A1	20030409 (10)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 2003-360779, filed on 19 Feb 2003, PENDING Continuation-in-part of Ser. No. US 2003-360770, filed on 6 Jan 2003, PENDING Continuation-in-part of Ser. No. US 2002-287994, filed on 5 Nov 2002, PENDING Continuation of Ser. No. WO 2002-US32263, filed on 9 Oct 2002, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	US 2002-407527P	20020828 (60)
	US 2002-404249P	20020816 (60)
	US 2002-396594P	20020717 (60)
	US 2002-391777P	20020625 (60)
	US 2002-387292P	20020607 (60)
	US 2001-334301P	20011128 (60)
	US 2001-334233P	20011128 (60)
	US 2001-344692P	20011019 (60)
	US 2001-328523P	20011010 (60)

DOCUMENT TYPE: Utility

FILE SEGMENT: APPLICATION

LEGAL REPRESENTATIVE: MORGAN, LEWIS & BOCKIUS LLP, 1701 MARKET STREET, PHILADELPHIA, PA, 19103-2921

NUMBER OF CLAIMS: 119

EXEMPLARY CLAIM: 1

NUMBER OF DRAWINGS: 497 Drawing Page(s)

LINE COUNT: 19412

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention includes methods and compositions for remodeling a peptide molecule, including the addition or deletion of one or more glycosyl groups to a peptide, and/or the addition of a modifying group to a peptide.

L3 ANSWER 10 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2004:107626 USPATFULL

TITLE: Interferon alpha: remodeling and glycoconjugation of interferon alpha

INVENTOR(S): DeFrees, Shawn, North Wales, PA, UNITED STATES  
 Zopf, David, Wayne, PA, UNITED STATES  
 Bayer, Robert, San Diego, CA, UNITED STATES  
 Bowe, Caryn, Doylestown, PA, UNITED STATES  
 Hakes, David, Willow Grove, PA, UNITED STATES  
 Chen, Xi, Lansdale, PA, UNITED STATES

PATENT ASSIGNEE(S): Neose Technologies, Inc. (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004082026	A1	20040429
APPLICATION INFO.:	US 2003-411049	A1	20030409 (10)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 2003-360779, filed on 19 Feb 2003, PENDING Continuation-in-part of Ser.		

No. US 2003-360770, filed on 6 Jan 2003, PENDING  
Continuation-in-part of Ser. No. US 2002-287994, filed  
on 5 Nov 2002, PENDING Continuation of Ser. No. WO  
2002-US32263, filed on 9 Oct 2002, PENDING

	NUMBER	DATE
PRIORITY INFORMATION:	US 2002-407527P	20020828 (60)
	US 2002-404249P	20020816 (60)
	US 2002-396594P	20020717 (60)
	US 2002-391777P	20020625 (60)
	US 2002-387292P	20020607 (60)
	US 2001-334301P	20011128 (60)
	US 2001-334233P	20011128 (60)
	US 2001-344692P	20011019 (60)
	US 2001-328523P	20011010 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	MORGAN, LEWIS & BOCKIUS LLP, 1701 MARKET STREET, PHILADELPHIA, PA, 19103-2921	
NUMBER OF CLAIMS:	126	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	497 Drawing Page(s)	
LINE COUNT:	19445	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		
AB	The invention includes a multitude of methods and compositions for remodeling a peptide molecule, including the addition or deletion of one or more glycosyl groups to a peptide, and/or the addition of a modifying group to a peptide.	
L3	ANSWER 11 OF 37 USPATFULL on STN	
ACCESSION NUMBER:	2004:101966 USPATFULL	
TITLE:	Granulocyte colony stimulating factor: remodeling and glycoconjugation of G-CSF	
INVENTOR(S):	DeFrees, Shawn, North Wales, PA, UNITED STATES Zopf, David, Wayne, PA, UNITED STATES Bayer, Robert, San Diego, CA, UNITED STATES Bowe, Caryn, Doylestown, PA, UNITED STATES Hakes, David, Willow Grove, PA, UNITED STATES Chen, Xi, Lansdale, PA, UNITED STATES	
PATENT ASSIGNEE(S):	Neose Technologies, Inc. (U.S. corporation)	

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004077836	A1	20040422
APPLICATION INFO.:	US 2003-410962	A1	20030409 (10)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 2003-360779, filed on 19 Feb 2003, PENDING Continuation-in-part of Ser. No. US 2003-360770, filed on 6 Jan 2003, PENDING Continuation-in-part of Ser. No. US 2002-287994, filed on 5 Nov 2002, PENDING Continuation of Ser. No. WO 2002-US32263, filed on 9 Oct 2002, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	US 2002-407527P	20020828 (60)
	US 2002-404249P	20020816 (60)
	US 2002-396594P	20020717 (60)
	US 2002-391777P	20020625 (60)
	US 2002-387292P	20020607 (60)
	US 2001-334301P	20011128 (60)
	US 2001-334233P	20011128 (60)
	US 2001-344692P	20011019 (60)
	US 2001-328523P	20011010 (60)

DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: MORGAN, LEWIS & BOCKIUS LLP, 1701 MARKET STREET,  
PHILADELPHIA, PA, 19103-2921  
NUMBER OF CLAIMS: 111  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 497 Drawing Page(s)  
LINE COUNT: 19316

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention includes methods and compositions for remodeling a peptide molecule, including the addition or deletion of one or more glycosyl groups to a peptide, and/or the addition of a modifying group to a peptide.

L3 ANSWER 12 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2004:83455 USPATFULL  
TITLE: Protein remodeling methods and proteins/peptides produced by the methods  
INVENTOR(S): DeFrees, Shawn, North Wales, PA, UNITED STATES  
Zopf, David, Wayne, PA, UNITED STATES  
Bayer, Robert, San Diego, CA, UNITED STATES  
Hakes, David, Willow Grove, PA, UNITED STATES  
Chen, Xi, Lansdale, PA, UNITED STATES  
PATENT ASSIGNEE(S): Neose Technologies, Inc. (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004063911	A1	20040401
APPLICATION INFO.:	US 2003-411026	A1	20030409 (10)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. US 2003-360779, filed on 19 Feb 2003, PENDING Continuation-in-part of Ser. No. US 2003-360770, filed on 6 Jan 2003, PENDING Continuation-in-part of Ser. No. US 2002-287994, filed on 5 Nov 2002, PENDING Continuation of Ser. No. WO 2002-US32263, filed on 9 Oct 2002, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	US 2002-407527P	20020828 (60)
	US 2002-404249P	20020816 (60)
	US 2002-396594P	20020717 (60)
	US 2002-391777P	20020625 (60)
	US 2002-387292P	20020607 (60)
	US 2001-334301P	20011128 (60)
	US 2001-334233P	20011128 (60)
	US 2001-344692P	20011019 (60)
	US 2001-328523P	20011010 (60)

DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: MORGAN, LEWIS & BOCKIUS LLP, 1701 MARKET STREET,  
PHILADELPHIA, PA, 19103-2921  
NUMBER OF CLAIMS: 39  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 497 Drawing Page(s)  
LINE COUNT: 18872

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention includes methods and compositions for remodeling a peptide molecule, including the addition or deletion of one or more glycosyl groups to a peptide, and/or the addition of a modifying group to a peptide.

L3 ANSWER 13 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2004:57444 USPATFULL  
TITLE: Alpha galactosidase a: remodeling and glycoconjugation

INVENTOR(S): of alpha galactosidase A  
DeFrees, Shawn, North Wales, PA, UNITED STATES  
Zopf, David, Wayne, PA, UNITED STATES  
Bayer, Robert, San Diego, CA, UNITED STATES  
Bowe, Caryn, Doylestown, PA, UNITED STATES  
Hakes, David, Willow Grove, PA, UNITED STATES  
Chen, Xi, Lansdale, PA, UNITED STATES  
PATENT ASSIGNEE(S): Neose Technologies, Inc. (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004043446	A1	20040304
APPLICATION INFO.:	US 2003-411037	A1	20030409 (10)
RELATED APPLN. INFO.:	Continuation-in-part of Ser. No. WO 2002-US32263, filed on 9 Oct 2002, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	US 2002-407527P	20020828 (60)
	US 2002-404249P	20020816 (60)
	US 2002-396594P	20020717 (60)
	US 2002-391777P	20020625 (60)
	US 2002-387292P	20020607 (60)

DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: MORGAN, LEWIS & BOCKIUS LLP, 1701 MARKET STREET,  
PHILADELPHIA, PA, 19103-2921

NUMBER OF CLAIMS: 122  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 497 Drawing Page(s)  
LINE COUNT: 19395

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention includes methods and compositions for remodeling a peptide molecule, including the addition or deletion of one or more glycosyl groups to a peptide, and/or the addition of a modifying group to a peptide.

L3 ANSWER 14 OF 37 BIOSIS COPYRIGHT (c) 2004 The Thomson Corporation. on STN

ACCESSION NUMBER: 2004:237501 BIOSIS  
DOCUMENT NUMBER: PREV200400237395  
TITLE: Lipopolysaccharide alpha-2,3 sialytransferase of campylobacter jejuni and its uses.  
AUTHOR(S): Gilbert, Michel [Inventor, Reprint Author]; Wakarchuk, Warren W. [Inventor]  
CORPORATE SOURCE: Quebec, Canada  
ASSIGNEE: National Research Council of Canada, Ottawa, Canada  
PATENT INFORMATION: US 6709834 March 23, 2004  
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Mar 23 2004) Vol. 1280, No. 4.  
<http://www.uspto.gov/web/menu/patdata.html>. e-file.  
ISSN: 0098-1133 (ISSN print).

DOCUMENT TYPE: Patent  
LANGUAGE: English  
ENTRY DATE: Entered STN: 28 Apr 2004  
Last Updated on STN: 28 Apr 2004

AB The structure and specificity of a recombinant alpha2,3-sialyltransferase from Campylobacter spp., is disclosed. Also provided are methods for using the alpha2,3-sialyltransferase in the production of desired carbohydrate structures and nucleic acids that encode the sialyltransferase.

L3 ANSWER 15 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:106956 CAPLUS  
 DOCUMENT NUMBER: 140:316978  
 TITLE: Structural analysis of the sialyltransferase CstII from *Campylobacter jejuni* in complex with a substrate analog  
 AUTHOR(S): Chiu, Cecilia P. C.; Watts, Andrew G.; Lairson, Luke L.; Gilbert, Michel; Lim, Daniel; Wakarchuk, Warren W.; Withers, Stephen G.; Strynadka, Natalie C. J.  
 CORPORATE SOURCE: Department of Biochemistry and Molecular Biology, University of British Columbia, Vancouver, BC, V6T 1Z3, Can.  
 SOURCE: Nature Structural & Molecular Biology (2004), 11(2), 163-170  
 CODEN: NSMBCU; ISSN: 1545-9993  
 PUBLISHER: Nature Publishing Group  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Sialic acid terminates oligosaccharide chains on mammalian and microbial cell surfaces, playing critical roles in recognition and adherence. The enzymes that transfer the sialic acid moiety from cytidine-5'-monophospho-N-acetyl-neuraminic acid (CMP-NeuAc) to the terminal positions of these key glycoconjugates are known as sialyltransferases. Despite their important biol. roles, little is understood about the mechanism or mol. structure of these membrane-associated enzymes. We report the first structure of a sialyltransferase, that of CstII from *Campylobacter jejuni*, a highly prevalent foodborne pathogen. Our structural, mutagenesis and kinetic data provide support for a novel mode of substrate binding and glycosyl transfer mechanism, including essential roles of a histidine (general base) and two tyrosine residues (coordination of the phosphate leaving group). This work provides a framework for understanding the activity of several sialyltransferases, from bacterial to human, and for the structure-based design of specific inhibitors.

REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 16 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2003:257784 USPATFULL  
 TITLE: In vitro modification of glycosylation patterns of recombinant glycopeptides  
 INVENTOR(S): Bayer, Robert J., San Diego, CA, UNITED STATES  
 PATENT ASSIGNEE(S): Neose Technologies, Inc., Horsham, PA (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003180835	A1	20030925
APPLICATION INFO.:	US 2003-391035	A1	20030317 (10)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 2001-855320, filed on 14 May 2001, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	US 2000-203851P	20000512 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834	
NUMBER OF CLAIMS:	55	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	5 Drawing Page(s)	
LINE COUNT:	2077	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides methods for modifying glycosylation patterns of glycopeptides, including recombinantly produced glycopeptides. Also

provided are glycopeptide compositions in which the glycopeptides have a uniform glycosylation pattern.

L3 ANSWER 17 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2003:225846 USPATFULL  
TITLE: Polypeptides having beta-1,4-GalNAc transferase activity  
INVENTOR(S): Gilbert, Michel, Hull, CANADA  
Wakarchuk, Warren W., Gloucester, CANADA  
PATENT ASSIGNEE(S): National Research Council of Canada, Ottawa, CANADA,  
K1A 0R6 (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003157658	A1	20030821
	US 6723545	B2	20040420
APPLICATION INFO.:	US 2002-303162	A1	20021121 (10)
RELATED APPLN. INFO.:	Division of Ser. No. US 2001-816028, filed on 21 Mar 2001, PENDING Continuation-in-part of Ser. No. US 2000-495406, filed on 31 Jan 2000, GRANTED, Pat. No. US 6503744		

	NUMBER	DATE
PRIORITY INFORMATION:	US 1999-118213P	19990201 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834	
NUMBER OF CLAIMS:	42	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	4 Drawing Page(s)	
LINE COUNT:	5466	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides prokaryotic glycosyltransferases, including a bifunctional sialyltransferase that has both an  $\alpha$ 2,3- and an  $\alpha$ 2,8-activity. A  $\beta$ 1,4-GalNAc transferase and a  $\beta$ 1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). The glycosyltransferases can be obtained from, for example, Campylobacter species, including *C. jejuni*. In additional embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases.

L3 ANSWER 18 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2003:225845 USPATFULL  
TITLE: Polypeptides having beta-1,3-galactosyl transferase activity  
INVENTOR(S): Gilbert, Michel, Hull, CANADA  
Wakarchuk, Warren W., Gloucester, CANADA  
PATENT ASSIGNEE(S): National Research Council of Canada, Ottawa, CANADA  
(non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003157657	A1	20030821
APPLICATION INFO.:	US 2002-303134	A1	20021121 (10)
RELATED APPLN. INFO.:	Division of Ser. No. US 2001-816028, filed on 21 Mar 2001, PENDING Continuation-in-part of Ser. No. US 2000-495406, filed on 31 Jan 2000, GRANTED, Pat. No. US 6503744		

NUMBER	DATE
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PRIORITY INFORMATION: US 1999-118213P 19990201 (60)  
DOCUMENT TYPE: Utility  
FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO  
CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834

NUMBER OF CLAIMS: 42  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 4 Drawing Page(s)  
LINE COUNT: 5460

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides prokaryotic glycosyltransferases, including a bifunctional sialyltransferase that has both an  $\alpha$ 2,3- and an  $\alpha$ 2,8-activity. A  $\beta$ 1,4-GalNAc transferase and a  $\beta$ 1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). The glycosyltransferases can be obtained from, for example, Campylobacter species, including *C. jejuni*. In additional embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases.

L3 ANSWER 19 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2003:225844 USPATFULL  
TITLE: Nucleic acids encoding beta-1,4-GalNAc transferase  
INVENTOR(S): Gilbert, Michel, Hull, CANADA  
Wakarchuk, Warren W., Gloucester, CANADA  
PATENT ASSIGNEE(S): National Research Council of Canada, Ottawa, CANADA  
(non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003157656	A1	20030821
APPLICATION INFO.:	US 2002-303128	A1	20021121 (10)
RELATED APPLN. INFO.:	Division of Ser. No. US 2001-816028, filed on 21 Mar 2001, PENDING Continuation-in-part of Ser. No. US 2000-495406, filed on 31 Jan 2000, GRANTED, Pat. No. US 6503744		

	NUMBER	DATE
PRIORITY INFORMATION:	US 1999-118213P	19990201 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834	

NUMBER OF CLAIMS: 42  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 4 Drawing Page(s)  
LINE COUNT: 5474

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides prokaryotic glycosyltransferases, including a bifunctional sialyltransferase that has both an  $\alpha$ 2,3- and an  $\alpha$ 2,8-activity. A  $\beta$ 1,4-GalNAc transferase and a  $\beta$ 1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). The glycosyltransferases can be obtained from, for example, Campylobacter species, including *C. jejuni*. In additional embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases.

L3 ANSWER 20 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2003:225843 USPATFULL



TITLE: Nucleic acids encoding polypeptides with  
beta-1,3-galactosyl transferase activity  
INVENTOR(S): Gilbert, Michel, Hull, CANADA  
Wakarchuk, Warren W., Gloucester, CANADA  
PATENT ASSIGNEE(S): National Research Council of Canada, Ottawa, CANADA, C  
(non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003157655	A1	20030821
APPLICATION INFO.:	US 2002-303118	A1	20021121 (10)
RELATED APPLN. INFO.:	Division of Ser. No. US 2001-816028, filed on 21 Mar 2001, PENDING Continuation-in-part of Ser. No. US 2000-495406, filed on 31 Jan 2000, GRANTED, Pat. No. US 6503744		

	NUMBER	DATE
PRIORITY INFORMATION:	US 1999-118213P	19990201 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834	
NUMBER OF CLAIMS:	42	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	4 Drawing Page(s)	
LINE COUNT:	5465	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides prokaryotic glycosyltransferases, including a bifunctional sialyltransferase that has both an  $\alpha$ 2,3- and an  $\alpha$ 2,8-activity. A  $\beta$ 1,4-GalNAc transferase and a  $\beta$ 1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). The glycosyltransferases can be obtained from, for example, Campylobacter species, including C. jejuni. In additional embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases.

L3 ANSWER 21 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2003:213821 USPATFULL  
TITLE: Polypeptides having sialyltransferase activity  
INVENTOR(S): Gilbert, Michel, Hull, CANADA  
Wakarchuk, Warren W., Gloucester, CANADA  
PATENT ASSIGNEE(S): National Research Council of Canada, Ottawa, CANADA  
(non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003148459	A1	20030807
APPLICATION INFO.:	US 2002-303161	A1	20021121 (10)
RELATED APPLN. INFO.:	Division of Ser. No. US 2001-816028, filed on 21 Mar 2001, PENDING Continuation-in-part of Ser. No. US 2000-495406, filed on 31 Jan 2000, GRANTED, Pat. No. US 6503744		

	NUMBER	DATE
PRIORITY INFORMATION:	US 1999-118213P	19990201 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834	
NUMBER OF CLAIMS:	42	

EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 4 Drawing Page(s)  
LINE COUNT: 5430  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides prokaryotic glycosyltransferases, including a bifunctional sialyltransferase that has both an  $\alpha$ 2,3- and an  $\alpha$ 2,8-activity. A  $\beta$ 1,4-GalNAc transferase and a  $\beta$ 1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). The glycosyltransferases can be obtained from, for example, Campylobacter species, including *C. jejuni*. In additional embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases.

L3 ANSWER 22 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2003:180815 USPATFULL  
TITLE: Practical in vitro sialylation of recombinant glycoproteins  
INVENTOR(S): Paulson, James C., Del Mar, CA, UNITED STATES  
Bayer, Robert J., San Diego, CA, UNITED STATES  
Sjoberg, Eric, San Diego, CA, UNITED STATES  
PATENT ASSIGNEE(S): Neose Technologies, Inc., Horsham, PA, UNITED STATES  
(U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003124645	A1	20030703
APPLICATION INFO.:	US 2002-219120	A1	20020813 (10)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 2001-7331, filed on 9 Nov 2001, PENDING Division of Ser. No. US 1998-7741, filed on 15 Jan 1998, GRANTED, Pat. No. US 6399336		

	NUMBER	DATE
PRIORITY INFORMATION:	WO 1998-US835	19980115
	US 1997-35710P	19970116 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834	
NUMBER OF CLAIMS:	58	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	2 Drawing Page(s)	
LINE COUNT:	1146	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

AB This invention provides methods for practical in vitro sialylation of glycoproteins, including recombinantly produced glycoproteins. The methods are useful for large-scale modification of sialylation patterns.

L3 ANSWER 23 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2003:70985 USPATFULL  
TITLE: Lipopolysaccharide  $\alpha$ -2, 3 sialyltransferase of Campylobacter jejuni and its uses  
INVENTOR(S): Gilbert, Michel, Quebec, CANADA  
Wakarchuk, Warren W., Ontario, CANADA  
PATENT ASSIGNEE(S): National Research Council of Canada, Ottawa, CANADA  
(non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003049270	A1	20030313
	US 6709834	B2	20040323

APPLICATION INFO.: US 2002-58636 A1 20020129 (10)  
RELATED APPLN. INFO.: Division of Ser. No. US 1999-272960, filed on 18 Mar  
1999, PENDING

	NUMBER	DATE
PRIORITY INFORMATION:	US 1998-78891P	19980320 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834	
NUMBER OF CLAIMS:	34	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	4 Drawing Page(s)	
LINE COUNT:	1545	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The structure and specificity of a recombinant **.alpha.**  
**2,3-sialyltransferase** from *Campylobacter*  
spp., is disclosed. Also provided are methods for using the  
**.alpha.2,3-sialyltransferase** in the  
production of desired carbohydrate structures and nucleic acids that  
encode the sialyltransferase.

L3 ANSWER 24 OF 37 USPATFULL on STN  
ACCESSION NUMBER: 2003:57473 USPATFULL  
TITLE: In vitro modification of glycosylation patterns of  
recombinant glycopeptides  
INVENTOR(S): Bayer, Robert J., San Diego, CA, UNITED STATES  
PATENT ASSIGNEE(S): Neose Technologies, Inc., Horsham, PA, UNITED STATES  
(U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003040037	A1	20030227
APPLICATION INFO.:	US 2002-219197	A1	20020813 (10)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 2001-855320, filed on 14 May 2001, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	WO 2001-US15693	20010514
	US 2000-203851P	20000512 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834	
NUMBER OF CLAIMS:	55	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	5 Drawing Page(s)	
LINE COUNT:	2071	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides methods for modifying glycosylation patterns of  
glycopeptides, including recombinantly produced glycopeptides. Also  
provided are glycopeptide compositions in which the glycopeptides have a  
uniform glycosylation pattern.

L3 ANSWER 25 OF 37 USPATFULL on STN  
ACCESSION NUMBER: 2003:3494 USPATFULL  
TITLE: Vitro modification of glycosylation patterns of  
recombinant glycopeptides  
INVENTOR(S): Bayer, Robert J., San Diego, CA, UNITED STATES  
PATENT ASSIGNEE(S): Neose Technologies, Inc., Horsham, PA, UNITED STATES  
(U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003003529	A1	20030102
APPLICATION INFO.:	US 2002-198806	A1	20020719 (10)
RELATED APPLN. INFO.:	Division of Ser. No. US 2001-855320, filed on 14 May 2001, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	WO 2001-US15693	20010514
	US 2000-203851P	20000512 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834	
NUMBER OF CLAIMS:	55	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	5 Drawing Page(s)	
LINE COUNT:	2076	
CAS INDEXING IS AVAILABLE FOR THIS PATENT.		

AB This invention provides methods for modifying glycosylation patterns of glycopeptides, including recombinantly produced glycopeptides. Also provided are glycopeptide compositions in which the glycopeptides have a uniform glycosylation pattern.

L3 ANSWER 26 OF 37 USPATFULL on STN  
 ACCESSION NUMBER: 2003:6819 USPATFULL  
 TITLE: Campylobacter glycosyltransferases for biosynthesis of gangliosides and ganglioside mimics  
 INVENTOR(S): Gilbert, Michel, Hull, CANADA  
 Wakarchuk, Warren W., Gloucester, CANADA  
 PATENT ASSIGNEE(S): National Research Council of Canada, Ottawa, CANADA  
 (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6503744	B1	20030107
APPLICATION INFO.:	US 2000-495406		20000131 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 1999-118213P	19990201 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	GRANTED	
PRIMARY EXAMINER:	Prouty, Rebecca E.	
ASSISTANT EXAMINER:	Rao, Manjunath N.	
LEGAL REPRESENTATIVE:	Townsend and Townsend and Crew LLP	
NUMBER OF CLAIMS:	5	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	7 Drawing Figure(s); 4 Drawing Page(s)	
LINE COUNT:	4086	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides prokaryotic glycosyltransferases, including a bifunctional sialyltransferase that has both an  $\alpha$ 2,3- and an  $\alpha$ 2,8-activity. A  $\beta$ 1,4-GalNAc transferase and a  $\beta$ 1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). The glycosyltransferases can be obtained from, for example, Campylobacter species, including C. jejuni. In additional embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases.

on STN  
 ACCESSION NUMBER: 2003:443221 SCISEARCH  
 THE GENUINE ARTICLE: 680EE  
 TITLE: Large-scale in vivo synthesis of the carbohydrate moieties of gangliosides GM1 and GM2 by metabolically engineered *Escherichia coli*  
 AUTHOR: Antoine T (Reprint); Priem B; Heyraud A; Greffe L; Gilbert M; Wakarchuk B W; Lam J S; Samain E  
 CORPORATE SOURCE: Ctr Rech Macromol Vegetales, 601 Rue Chim, BP 53X, F-38041 Grenoble 09, France (Reprint); Ctr Rech Macromol Vegetales, F-38041 Grenoble 09, France; Natl Res Council Canada, Inst Biol Sci, Ottawa, ON K1A 0R6, Canada; Univ Guelph, Dept Microbiol, Guelph, ON N1G 2W1, Canada  
 COUNTRY OF AUTHOR: France; Canada  
 SOURCE: CHEMBIOCHEM, (9 MAY 2003) Vol. 4, No. 5, pp. 406-412. Publisher: WILEY-VCH VERLAG GMBH, PO BOX 10 11 61, D-69451 WEINHEIM, GERMANY. ISSN: 1439-4227.  
 DOCUMENT TYPE: Article; Journal  
 LANGUAGE: English  
 REFERENCE COUNT: 28

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB Two metabolically engineered *Escherichia coli* strains have been constructed to produce the carbohydrate moieties of gangliosides GM2 (GalNAc $\beta$ -4(NeuAc $\alpha$ -3)Gal $\beta$ -4Glc; Gal=galactose, Glc=glucose Ac=acetyl) and GM1 (Gal $\beta$ -3GalNAc $\beta$ -4(NeuAc $\alpha$ -3)Gal $\beta$ -4Glc. The GM2 oligosaccharide-producing strain TA02 was devoid of both  $\beta$ -galactosidase and sialic acid aldolase activities and overexpressed the genes for CMP-NeuAc Synthase (CMP = cytidine monophosphate),  **$\alpha$ -2,3-sialyltransferase** UDP-GlcNAc (UDP=uridine diphosphate) C4 epimerase, and  $\beta$ -1,4-GalNAc transferase. When this strain was cultivated on glycerol, exogenously added lactose and sialic acid were shown to be actively internalized into the cytoplasm and converted into GM2 oligosaccharide. The in vivo synthesis of GM1 oligosaccharide was achieved, by taking a similar approach but using strain TAGS, which additionally overexpressed the gene for  $\beta$ -1,3-galactosyltransferase. In high-cell-density cultures, the production yields for the GM2 and GM1 oligosaccharides were 1.25 g L<sup>-1</sup> and 0.89 g L<sup>-1</sup>, respectively.

L3 ANSWER 28 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2  
 ACCESSION NUMBER: 2002:276514 CAPLUS  
 DOCUMENT NUMBER: 136:320378  
 TITLE: *Campylobacter* glycosyltransferase genes and enzymes for biosynthesis of gangliosides and ganglioside mimics  
 INVENTOR(S): Gilbert, Michel; Wakarchuk, Warren W.  
 PATENT ASSIGNEE(S): National Research Council of Canada, Can.  
 SOURCE: U.S. Pat. Appl. Publ., 84 pp., Cont.-in-part of U.S. Ser. No. 495,406. CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002042369	A1	20020411	US 2001-816028	20010321
US 6699705	B2	20040302		
US 6503744	B1	20030107	US 2000-495406	20000131
WO 2002074942	A2	20020926	WO 2002-CA229	20020222
WO 2002074942	A3	20030313		
WO 2002074942	B1	20030703		

W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

EP 1385941 A2 20040204 EP 2002-703414 20020222

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

JP 2004524033	T2	20040812	JP 2002-574334	20020222
US 2003148459	A1	20030807	US 2002-303161	20021121
US 2003157655	A1	20030821	US 2002-303118	20021121
US 2003157656	A1	20030821	US 2002-303128	20021121
US 2003157657	A1	20030821	US 2002-303134	20021121
US 2003157658	A1	20030821	US 2002-303162	20021121
US 6723545	B2	20040420		
US 2004180406	A1	20040916	US 2003-735419	20031211

PRIORITY APPLN. INFO.:

US 1999-118213P	P	19990201
US 2000-495406	A2	20000131
US 2001-816028	A	20010321
WO 2002-CA229	W	20020222

AB This invention provides *Campylobacter jejuni* glycosyltransferases, including a bifunctional sialyltransferase that has both an  $\alpha$ 2,3- and an  $\alpha$ 2,8-activity. A  $\beta$ 1,4-GalNAc transferase and a  $\beta$ 1,3-galactosyltransferase are also provided by the invention, as are other glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). In addnl. embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases. The enzymes may be used in preparation of gangliosides, lysogangliosides, and mimics of gangliosides and lysogangliosides. Thus, C. *jejuni* gene cstI .alpha.2,3-sialyltransferase, gene cstII bifunctional  $\alpha$ 2,3/ $\alpha$ 2,8-sialyltransferase, gene cgtA  $\beta$ -1,4-N-acetylgalactosaminyltransferase, and gene cgtB  $\beta$ -1,3-galactosyltransferase enzymes were used to prepare the carbohydrate portion of gangliosides GM1a, GM2, GM3, GD1a, GD3, and GT1a.

L3 ANSWER 29 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2002:287597 USPATFULL

TITLE: Practical in vitro sialylation of recombinant glycoproteins

INVENTOR(S): Paulson, James C., Del Mar, CA, UNITED STATES  
Bayer, Robert J., San Diego, CA, UNITED STATES  
Sjoberg, Eric, San Diego, CA, UNITED STATES

PATENT ASSIGNEE(S): Neose Technologies, Inc., Horsham, PA (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002160460	A1	20021031
APPLICATION INFO.:	US 2002-81456	A1	20020221 (10)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1998-7741, filed on 15 Jan 1998, GRANTED, Pat. No. US 6399336		

	NUMBER	DATE
PRIORITY INFORMATION:	US 1997-35710P	19970116 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	

LEGAL REPRESENTATIVE: TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO  
CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834  
NUMBER OF CLAIMS: 58  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 2 Drawing Page(s)  
LINE COUNT: 1142

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides methods for practical in vitro sialylation of  
glycoproteins, including recombinantly produced glycoproteins. The  
methods are useful for large-scale modification of sialylation patterns.

L3 ANSWER 30 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2002:258800 USPATFULL  
TITLE: Practical in vitro sialylation of recombinant  
glycoproteins  
INVENTOR(S): Paulson, James C., Del Mar, CA, UNITED STATES  
Bayer, Robert J., San Diego, CA, UNITED STATES  
Sjoberg, Eric, San Diego, CA, UNITED STATES  
PATENT ASSIGNEE(S): Neose Technologies, Inc., Horsham, PA, UNITED STATES,  
19044 (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002142370	A1	20021003
APPLICATION INFO.:	US 2002-81455	A1	20020221 (10)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1998-7741, filed on 15 Jan 1998, GRANTED, Pat. No. US 6399336		

	NUMBER	DATE
PRIORITY INFORMATION:	US 1997-35710P	19970116 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834	
NUMBER OF CLAIMS:	58	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	2 Drawing Page(s)	
LINE COUNT:	1135	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides methods for practical in vitro sialylation of  
glycoproteins, including recombinantly produced glycoproteins. The  
methods are useful for large-scale modification of sialylation patterns.

L3 ANSWER 31 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2002:221376 USPATFULL  
TITLE: Practical in vitro sialylation of recombinant  
glycoproteins  
INVENTOR(S): Paulson, James C., Del Mar, CA, UNITED STATES  
Bayer, Robert J., San Diego, CA, UNITED STATES  
Sjoberg, Eric, San Diego, CA, UNITED STATES  
PATENT ASSIGNEE(S): Cytel Corporation (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002119516	A1	20020829
APPLICATION INFO.:	US 2001-7331	A1	20011109 (10)
RELATED APPLN. INFO.:	Division of Ser. No. US 1998-7741, filed on 15 Jan 1998, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	US 1997-35710P	19970116 (60)
DOCUMENT TYPE:	Utility	

FILE SEGMENT: APPLICATION  
LEGAL REPRESENTATIVE: TOWNSEND AND TOWNSEND AND CREW, LLP, TWO EMBARCADERO  
CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834  
NUMBER OF CLAIMS: 58  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 2 Drawing Page(s)  
LINE COUNT: 1150

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides methods for practical in vitro sialylation of  
glycoproteins, including recombinantly produced glycoproteins. The  
methods are useful for large-scale modification of sialylation patterns.

L3 ANSWER 32 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2002:32520 USPATFULL  
TITLE: In vitro modification of glycosylation patterns of  
recombinant glycopeptides  
INVENTOR(S): Bayer, Robert, San Diego, CA, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002019342	A1	20020214
APPLICATION INFO.:	US 2001-855320	A1	20010514 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 2000-203851P	20000512 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	TOWNSEND AND TOWNSEND AND CREW, TWO EMBARCADERO CENTER, EIGHTH FLOOR, SAN FRANCISCO, CA, 94111-3834	
NUMBER OF CLAIMS:	55	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	5 Drawing Page(s)	
LINE COUNT:	2069	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides methods for modifying glycosylation patterns of  
glycopeptides, including recombinantly produced glycopeptides. Also  
provided are glycopeptide compositions in which the glycopeptides have a  
uniform glycosylation pattern.

L3 ANSWER 33 OF 37 USPATFULL on STN

ACCESSION NUMBER: 2002:129751 USPATFULL  
TITLE: Practical in vitro sialylation of recombinant  
glycoproteins  
INVENTOR(S): Paulson, James C., Del Mar, CA, United States  
Bayer, Robert J., San Diego, CA, United States  
Sjoberg, Eric, San Diego, CA, United States  
PATENT ASSIGNEE(S): Neose Technologies, Inc., Horsham, PA, United States  
(U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6399336	B1	20020604
APPLICATION INFO.:	US 1998-7741		19980115 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 1997-35710P	19970116 (60)
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	GRANTED	
PRIMARY EXAMINER:	Achutamurthy, Ponnathapu	
ASSISTANT EXAMINER:	Rao, Manjunath N.	
LEGAL REPRESENTATIVE:	Townsend and Townsend and Crew LLP	
NUMBER OF CLAIMS:	87	



EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 2 Drawing Figure(s); 2 Drawing Page(s)  
LINE COUNT: 1239

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides methods for practical in vitro sialylation of glycoproteins, including recombinantly produced glycoproteins. The methods are useful for large-scale modification of sialylation patterns.

L3 ANSWER 34 OF 37 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation.  
on STN

ACCESSION NUMBER: 2001:339631 SCISEARCH

THE GENUINE ARTICLE: 423VN

TITLE: Dependence of the bi-functional nature of a sialyltransferase from *Neisseria meningitidis* on a single amino acid substitution

AUTHOR: Wakarchuk W W (Reprint); Watson D; St Michael F; Li J J; Wu Y Y; Brisson J R; Young N M; Gilbert M

CORPORATE SOURCE: Natl Res Council Canada, Inst Biol Sci, Immunochem Program, 100 Sussex Dr, Ottawa, ON K1A 0R6, Canada (Reprint); Natl Res Council Canada, Inst Biol Sci, Immunochem Program, Ottawa, ON K1A 0R6, Canada

COUNTRY OF AUTHOR: Canada

SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (20 APR 2001) Vol. 276, No. 16, pp. 12785-12790.

Publisher: AMER SOC BIOCHEMISTRY MOLECULAR BIOLOGY INC, 9650 ROCKVILLE PIKE, BETHESDA, MD 20814 USA.

ISSN: 0021-9258.

DOCUMENT TYPE: Article; Journal

LANGUAGE: English

REFERENCE COUNT: 27

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB The L1 immunotype strain 126E of *Neisseria meningitidis* has been shown to have an N-acetyl-neuraminic acid-containing lipooligosaccharide in which an alpha -linked galactose from a pk epitope is substituted at the O6 position (Wakarchuk, W, W., Gilbert, M., Martin, A., Wu, Y., Brisson, J, R., Thibault, P., and Richards, J, C, (1998) Eur. J, Biochem. 254, 626-633), Using a synthetic pk-epitope containing acceptor in glycosyltransferase reactions, we were able to show by NMR analysis of the reaction product that the 126E(L1)-derived sialyltransferase can make both alpha -2,3 and alpha -2,6 linkages to the terminal galactose, Gene disruption experiments showed that the 1st gene in 126E(L1) was responsible for the in vivo addition of the alpha -2,6-linked N-acetyl-neuraminic acid residue. By site-directed mutagenesis it was possible to change the MC58(L3)-derived enzyme into a bifunctional enzyme with a single amino acid change at position 168, where a glycine was changed to an isoleucine. We performed a gene replacement experiment where the 126E(L1) alpha -2,3/6-sialyltransferase was replaced by allelic exchange with the monofunctional MC58(L3) alpha -2, 3-sialyltransferase and with the mutant MC58(L3) allele G168I, We observed that the level of LOS sialylation with the G168I allele was very similar to that of the wild type 126E(L1), indicating that residue 168 is the critical residue for the alpha -2,6-sialyltransferase activity in vitro as well as in vivo.

L3 ANSWER 35 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3

ACCESSION NUMBER: 2000:129311 CAPLUS

DOCUMENT NUMBER: 132:304980

TITLE: Biosynthesis of ganglioside mimics in *Campylobacter jejuni* OH4384. Identification of the glycosyltransferase genes, enzymatic synthesis of model compounds, and characterization of nanomole amounts by 600-MHz H and C NMR analysis

AUTHOR(S): Gilbert, Michel; Brisson, Jean-Robert; Karwaski, Marie-France; Michniewicz, Joseph; Cunningham,

Anna-Maria; Wu, Yuyang; Young, N. Martin; Wakarchuk, Warren W.  
CORPORATE SOURCE: Institute for Biological Sciences, National Research Council of Canada, Ottawa, ON, K1A 0R6, Can.  
SOURCE: Journal of Biological Chemistry (2000), 275(6), 3896-3906  
CODEN: JBCHA3; ISSN: 0021-9258  
PUBLISHER: American Society for Biochemistry and Molecular Biology  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB We have applied two strategies for the cloning of four genes responsible for the biosynthesis of the GT1a ganglioside mimic in the lipooligosaccharide (LOS) of a bacterial pathogen, *Campylobacter jejuni* OH4384, which has been associated with Guillain-Barre syndrome. We first cloned a gene encoding an  $\alpha$ -2,3-sialyltransferase (cst-I) using an activity screening strategy. We then used nucleotide sequence information from the recently completed sequence from C. *jejuni* NCTC 11168 to amplify a region involved in LOS biosynthesis from C. *jejuni* OH4384. The LOS biosynthesis locus from C. *jejuni* OH4384 is 11.47 kilobase pairs and encodes 13 partial or complete open reading frames, while the corresponding locus in C. *jejuni* NCTC 11168 spans 13.49 kilobase pairs and contains 15 open reading frames, indicating a different organization between these two strains. Potential glycosyltransferase genes were cloned individually, expressed in *Escherichia coli*, and assayed using synthetic fluorescent oligosaccharides as acceptors. We identified genes encoding a  $\beta$ -1,4-N-acetylgalactosaminyltransferase (cgtA), a  $\beta$ -1,3-galactosyltransferase (cgtB), and a bifunctional sialyltransferase (cst-II), which transfers sialic acid to O-3 of galactose and to O-8 of a sialic acid that is linked  $\alpha$ -2,3- to a galactose. The linkage specificity of each identified glycosyltransferase was confirmed by NMR anal. at 600 MHz on nanomole amts. of model compds. synthesized in vitro. Using a gradient inverse broadband nano-NMR probe, sequence information could be obtained by detection of  $^3J(C,H)$  correlations across the glycosidic bond. The role of cgtA and cst-II in the synthesis of the GT1a mimic in C. *jejuni* OH4384 were confirmed by comparing their sequence and activity with corresponding homologs in two related C. *jejuni* strains that express shorter ganglioside mimics in their LOS.

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 36 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1999:626342 CAPLUS

DOCUMENT NUMBER: 131:253359

TITLE: *Campylobacter jejuni* gene cst-I lipopolysaccharide  $\alpha$ -2,3 sialyltransferase, its DNA and amino acid sequences, recombinant production, and its acceptor specificity

INVENTOR(S): Gilbert, Michel; Wakarchuk, Warren W.

PATENT ASSIGNEE(S): National Research Council of Canada, Can.

SOURCE: PCT Int. Appl., 47 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9949051	A1	19990930	WO 1999-CA238	19990322
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ,				

DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,  
 JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK,  
 MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,  
 TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD,  
 RU, TJ, TM

RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,  
 ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG,  
 CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 6689604	B1	20040210	US 1999-272960	19990318
CA 2323753	AA	19990930	CA 1999-2323753	19990322
AU 9928230	A1	19991018	AU 1999-28230	19990322
AU 745040	B2	20020307		
EP 1082440	A1	20010314	EP 1999-908717	19990322
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2002507424	T2	20020312	JP 2000-538012	19990322
US 2003049270	A1	20030313	US 2002-58636	20020129
US 6709834	B2	20040323		
US 2004152165	A1	20040805	US 2004-799016	20040311
PRIORITY APPLN. INFO.:			US 1998-78891P	P 19980320
			US 1999-272960	A 19990318
			WO 1999-CA238	W 19990322
			US 2002-58636	A3 20020129

AB The invention provides DNA mols. that encode gene cst-I lipopolysaccharide .alpha.-2,3 sialyltransferase of Campylobacter jejuni. The DNA sequence of C. jejuni gene cst-I, as well as the corresponding amino acid sequence of lipopolysaccharide .alpha.-2,3 sialyltransferase are claimed. The invention also provides methods for the recombinant production of lipopolysaccharide .alpha.-2,3 sialyltransferase in prokaryotic and eukaryotic cells. The invention further provides the specificity of the C. jejuni lipopolysaccharide .alpha.-2,3 sialyltransferase. The C. jejuni lipopolysaccharide .alpha.-2,3 sialyltransferase uses terminal galactose acceptors that are  $\beta$ -(1 $\rightarrow$ 4) linked to either glucose or N-acetylglucosamine. The enzyme also uses terminal galactose acceptors that are  $\beta$ -(1 $\rightarrow$ 3) linked to N-acetylglucosamine or N-acetylgalactosamine. The enzyme uses cytidine monophosphate-N-acetylneuraminic acid (CMP-Neu5Ac) as the donor. The broad acceptor specificity of lipopolysaccharide .alpha.-2,3 sialyltransferase encoded by cst-I demonstrates its utility and makes it an attractive tool for chemo-enzymic synthesis of sialylated oligosaccharides.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 37 OF 37 SCISEARCH COPYRIGHT (c) 2004 The Thomson Corporation.  
 on STN DUPLICATE 4

ACCESSION NUMBER: 1999:733349 SCISEARCH

THE GENUINE ARTICLE: 238JB

TITLE: Synthesis of a disialylated hexasaccharide of Type VIII Group B Streptococcus capsular polysaccharide

AUTHOR: Eichler E; Jennings H J; Gilbert M; Whitfield D M  
 (Reprint)

CORPORATE SOURCE: NATL RES COUNCIL CANADA, 100 SUSSEX DR, OTTAWA, ON K1A 0R6, CANADA (Reprint); NATL RES COUNCIL CANADA, OTTAWA, ON K1A 0R6, CANADA

COUNTRY OF AUTHOR: CANADA

SOURCE: CARBOHYDRATE RESEARCH, (30 JUN 1999) Vol. 319, No. 1-4, pp. 1-16.  
 Publisher: ELSEVIER SCI LTD, THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD OX5 1GB, OXON, ENGLAND.  
 ISSN: 0008-6215.

DOCUMENT TYPE: Article; Journal  
FILE SEGMENT: PHYS; LIFE; AGRI  
LANGUAGE: English  
REFERENCE COUNT: 21

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB As part of our program to design, develop and prepare protective vaccines against the bacterial pathogens Group B Streptococcus, we report the synthesis of a disialylated hexasaccharide. This hexasaccharide represents a portion of the serotype-specific capsular polysaccharide of Type VIII that has the tetrasaccharide repeat unit {beta-L-Rhap-(1 --> 4)-beta-D-Glcp-(1 --> 4)-[alpha-Neu5Ac-(2 --> 3)]-beta-D-Galp-(1 --> 4)}(n). A tetrasaccharide corresponding to this repeat unit has been synthesized by us [E. Eichler, H.J. Jennings, D.M. Whitfield, J. Carbohydr. Chem., 16 (1997) 385-411]. Since the protective epitopes are believed to involve several repeat units, methods to extend this tetrasaccharide were examined. This objective requires a glycosylation of the unreactive OH-4 of the beta-L-Rhap, which was accomplished by coupling a D-Galp glycosyl trichloroacetimidate donor with a beta-L-Rhap-(1 --> 4)-D-Glcp acceptor. Subsequent coupling of this trisaccharide as a donor to an alpha-Neu5Ac-(2 --> 3)-D-Galp disaccharide acceptor gave a pentasaccharide. The pentasaccharide was deprotected and enzymatically sialylated using an **alpha-(2 --> 3)-sialyltransferase** from *Campylobacter jejuni* to give the title hexasaccharide **alpha-Neu5Ac-(2 --> 3)-beta-D-Galp-(1 --> 4)-beta-L-Rhap-(1 --> 4)-beta-D-Glcp-(1 --> 4)-[alpha-Neu5Ac-(2 --> 3)]-beta-D-Galp-(1 --> 4)-(CH<sub>2</sub>)<sub>3</sub>N-3**. (C) 1999 Elsevier Science Ltd. All rights reserved.

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